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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,565	03/11/2005	Peter Stewart Allan	MARK5974	7323

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EXAMINER

EWALD, MARIA VERONICA

ART UNIT	PAPER NUMBER
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1722

DATE MAILED: 10/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/527,565

Applicant(s)

ALLAN ET AL.

Examiner

Maria Veronica D. Ewald

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 19-32 is/are pending in the application.
- 4a) Of the above claim(s) 31 and 32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____                                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/11/05</u> .   | 6) <input type="checkbox"/> Other: ____                           |

## DETAILED ACTION

### *Election/Restrictions*

13. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 19 – 30, drawn to an injection molding apparatus with vibration means, classified in class 425, subclass 174.2.
- II. Claims 31 – 32, drawn to a method of imparting vibration to an injection molded plastic, classified in class 264, subclass 442.

Inventions II and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the process as claimed can be practiced by a batch-type mixer in which an ultrasonic vibration means is attached to the mixer or flow path of the chemical being kneaded or blended to apply direct vibration to such a chemical.

Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Atty. Alan Young on September 25, 2006 a provisional election was made without traverse to prosecute the invention of Group I, claims 19 – 30. Affirmation of this election must be made by applicant in replying to this

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Office action. Claims 31 – 32 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Claim Rejections - 35 USC § 102***

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 19 – 20, 22 – 23 and 28 – 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura (U.S. 6,190,601). Nakamura teaches an apparatus for improving flow characteristics of injection molding material, the apparatus comprising: a flow path through which a material to be injection molded passes in use (figure 2; column 6, lines 20 – 30); ultrasonic vibration means arranged for direct contact with material passing through the flow path in use, for directly vibrating the material as it is being injected, wherein the flow path is formed in a part of an injection molding tool (item 30 – figure 2; column 2, lines 15 – 31; column 3, lines 65 – 67); wherein the injection molding tool includes a fixed part that is fixed relative to an injection barrel during normal use and a moving part that is adapted to move relative to the fixed part during normal use and wherein the flow path is formed in the fixed part of the injection molding tool (figure 2; column 1, lines 37 – 42; column 6, lines 20 – 30); wherein a portion of the vibration means extends at least partially into the flow path to directly

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vibrate material in the flow path (figures 2, 3A and 3B); wherein the vibration means is mounted on the part of the molding tool that forms the flow path (figures 2, 3A and 3B).

With respect to claims 28 – 30, Nakamura further teaches that the vibration means includes an ultrasonic probe (figures 2, 3A and 3B); wherein the vibration means includes a sonotrode (figures 2, 3A and 3B; column 5, lines 62 – 67); wherein the vibration means is configured to operate at a frequency of between 10 kHz to 50 kHz (column 2, lines 27 – 32).

Claims 19 – 21, 23 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Eicher, et al. (U.S. 6,361,733). Eicher, et al. teach an apparatus for improving flow characteristics of injection molding material, the apparatus comprising: a flow path through which a material to be injection molded passes in use (figure 1; column 2, lines 15 – 33); ultrasonic vibration means arranged for direct contact with material passing through the flow path in use, for directly vibrating the material as it is being injected, wherein the flow path is formed in a part of an injection molding tool (item 16 – figure 1; column 2, lines 1 – 5 and 20 – 25); wherein the injection molding tool includes a fixed part that is fixed relative to an injection barrel during normal use and a moving part that is adapted to move relative to the fixed part during normal use and wherein the flow path is formed in the fixed part of the injection molding tool (figure 1); wherein the flow path defines a longitudinal axis and wherein the vibration means extends transverse to the longitudinal axis of the flow path, and wherein an end portion

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of the vibration means is arranged for direct contact with the material passing through the flow path in use (figure 1; column 2, lines 15 – 25).

With respect to claims 23 and 30, Eicher, et al. further teach that the vibration means is mounted on the part of the molding tool that forms the flow path (figure 2); wherein the vibration means is configured to operate at a frequency of between 10 kHz to 50 kHz (column 2, lines 10 – 15).

***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 24 – 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura in view of Grunitz (U.S. 6,203,747). Nakamura teaches the characteristics previously described but do not teach that there is a non-metallic seating and a seal disposed about the vibration means.

In a method to induce melt flow and homogenize melt flow in an injection molding cylinder via ultrasonic vibration, Grunitz teaches that the vibration element is mounted to the injection cylinder via flanges which allows the vibration element to be prestressed (column 4, lines 17 – 20). Such prestressing prevents intrinsic distortion of the vibration element during the vibration process (column 4, lines 20 – 22). In addition, there is a sliding seal between the injection cylinder and the mold itself, which allows the vibration

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of the injection cylinder to remain independent from the mold part (column 4, lines 25 – 30). This reads on the Applicant's claims that there is a non-metallic seating means for mounting the vibration means on the apparatus, the non-metallic seating means being configured to prevent metal to metal contact between the vibration means and the apparatus; wherein the non-metallic seating means are also configured to provide a seal about the vibration means; wherein there is also a seal disposed about the vibration means at a nodal point on the vibration means where little or no vibration occurs; wherein the seal includes a metallic seal.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to modify the apparatus of Nakamura, such that it is mounted to the injection cylinder via flanges, to prestress the vibration cylinder and prevent any distortion during vibration while also providing a sliding seal disposed about the vibration means such that the vibration is concentrated to the material and the injection cylinder while not affecting the fixed mold part.

#### ***References of Interest***

16. Isayev, et al. (U.S. 5,284,625) and Isayev, et al. (U.S. 6,528,554) are cited of interest to show the state of the art.

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**Conclusion**

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria Veronica D. Ewald whose telephone number is 571-272-8519. The examiner can normally be reached on M-F, 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MVE

  
JOSEPH S. DEL SOLE  
PRIMARY EXAMINER  
9/26/06